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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,807	03/18/2004	Kunio Shigeta	08830.0015	5104
22852	7590	05/11/2006	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			WALSH, RYAN D	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/802,807	Applicant(s) SHIGETA ET AL.	
	Examiner Ryan D. Walsh	Art Unit 2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 11-28, 33-36, 39, 40, 43 and 44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 30, 32, 37, 38, 41 and 42 is/are rejected.
- 7) ☒ Claim(s) 29 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/14/04 & 11/5/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election of Embodiment 1, Figure 2, claims 1-10, 29-32, 37-38 and 41-42 in the reply filed on April 12, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 37-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (US Pub. 2002/0009309).

Regarding claim 1, Suzuki teaches, "A development apparatus comprising: a housing (Fig .3, ref. # 14) in which a developer supplying/collecting unit (6) and a developer stirring unit (7) are arranged in a front-and-rear direction, the developer supplying/collecting unit and the developer stirring unit together forming a circular passage so as to communicate each other for carrying two-component developer which is composed of toner and carrier [0060]; a developer carrying member (5) which is placed at a front side portion of the developer supplying/collecting unit so as to face a latent image carrying member with respect to a development region (Entire roller faces 12); a developer supplying/collecting section (6) for carrying the developer in a rotation

axis direction thereof by being rotated, the developer supplying/collecting section placed at a rear side portion (see Fig. 3) of the developer supplying/collecting unit so as to face the developer carrying member (5) and to extend along a rotation axis direction of the developer carrying member; and two developer stirring sections (Fig. 3. ref. # 7) which are arranged in the front-and-rear direction in the developer stirring unit so as to face each other and to extend along a rotation axis direction of the developer supplying/collecting section, wherein, in the housing (14), a toner supplying opening (Fig. 3, "supplied port of toners arrow") is formed above a position where the two developer stirring sections of the developer stirring unit face each other and at an upstream side in a developer carrying direction in the developer stirring unit, the two developer stirring sections (7) are rotated at the position where the two developer stirring sections face each other so as to move peripheries thereof up to down in a forward direction to each other [0062], the developer carrying direction by the two developer stirring sections is substantially opposite to a developer carrying direction by the developer supplying/collecting section (see direction of arrows in Fig. 3), and developer carrying **capability** of each of the two developer stirring sections is **set** so as to make sum total of developer carrying amount by the two developer stirring sections equal to that by the developer supplying/collecting section (see MPEP 2173.05(g) regarding **FUNCTIONAL LIMITATIONS**, the two developer stirring sections are **CAPABLE** of carrying an amount equal to the developer supplying/collecting section)."

Regarding claim 2, Suzuki teaches, "wherein one of the two developer stirring sections (leftmost ref. # 7 in Fig. 3, compared to ref. # 6) in the developer stirring unit

carries the developer in a direction opposite to a direction in which the developer supplying/collecting section carries the developer and **has the developer carrying capability** in the rotation axis direction equal to that of the developer supplying/collecting section, and another developer stirring section **has substantially no developer carrying capability** in the rotation axis direction (The structure of the present application is anticipated by Suzuki, and Suzuki is **capable** of performing the claimed operation)."

Regarding claim 3, Suzuki teaches, "wherein, in the developer stirring unit, another developer stirring section having substantially no developer carrying capability in the rotation axis direction is placed at a rear side with respect to the developer supplying/collecting unit (see Fig. 3)."

Regarding claims 37 and 38, Suzuki teaches, "wherein, in the developer supplying/collecting unit, peripheries of the developer carrying member and the developer supplying/collecting section are moved in opposite directions to each other at a position where the developer carrying member and the developer supplying/collecting section face each other (see Fig. 3, ref. # 5 and 6)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US Pub. 2002/0009309) in view of Kobayahsi et al. (US Pub. 2002/0098437), hereinafter referred to as Kobayahsi.

Regarding claim 4, Suzuki does not teach, "wherein the two-component developer is composed of the toner having a volume average particle diameter of 3 μm to 5 μm , and, denoting the volume average particle diameter of the toner by D_t (μm), the carrier having volume average particle diameter of 5.times. D_t to 10.times. D_t ." However, Kobayahsi teaches, "wherein the two-component developer is composed of the toner having a volume average particle diameter of 3 μm to 5 μm , and, denoting the volume average particle diameter of the toner by D_t (μm), the carrier having volume average particle diameter of 5.times. D_t to 10.times. D_t (See Claim 14)." It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Suzuki's invention to include the two-component developer is composed of the toner having a volume average particle diameter of 3 μm to 5 μm , and, denoting the volume average particle diameter of the toner by D_t (μm), the carrier having volume average particle diameter of 5.times. D_t to 10.times. D_t .

The ordinary artisan would have been motivated to modify Suzuki's invention in a manner described above for at least the purpose of reducing fogging or density variation of the toner, which would reduce in image defects (see Kobayahsi [0005]).

Claims 5-6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US Pub. 2002/0009309) in view of Tamai (US Pub. 2003/0156859) and in further view of Hibino et al. (JP Pub. 07-013420), hereinafter referred to as Hibino.

Regarding claims 5 and 8, Suzuki teaches, "the developer supplying/collecting section (6) comprises a stirring member extending spirally (see Fig. 4) in the rotation axis direction throughout an outer periphery of a shaft member." Suzuki does not teach, "one of the two developer stirring sections comprises a stirring member extending spirally in the rotation axis direction throughout an outer periphery of a shaft member, the stirring member carrying the developer in a direction opposite to a direction in which the developer supplying/collecting section carries the developer with the developer stirred, and has the developer carrying capability in the rotation axis direction equal to that of the developer supplying/collecting section, and another developer stirring section comprises a plurality of plate-like stirring members (*or claim 8: a rib placed on an outer periphery of a shaft member or at a position with being apart from each other with respect to the shaft member in a radial direction so as to extend along the rotation axis direction*) with a shaft member passing through, the plurality of stirring members inclined in a same direction with respect to the shaft member, and has substantially no developer carrying capability in the rotation axis direction." However, Tamai teaches, "one of the two developer stirring sections (ref. # 4, Fig. 's 1 and 2) comprises a stirring member extending spirally in the rotation axis direction throughout an outer periphery of a shaft member, the stirring member carrying the developer in a direction opposite to a direction in which the developer supplying/collecting section carries the developer with

the developer stirred, and has the **developer carrying capability** in the rotation axis direction equal to that of the developer supplying/collecting section (ref. # 4 is **capable** of performing this function).” Also, Hibino teaches, “another developer stirring section comprises a plurality of plate-like stirring members (*or claim 8: a rib placed on an outer periphery of a shaft member or at a position with being apart from each other with respect to the shaft member in a radial direction so as to extend along the rotation axis direction*) (Fig. 9, ref. #'s 59c) with a shaft member passing through, the plurality of stirring members inclined in a same direction with respect to the shaft member, and has substantially **no developer carrying capability** in the rotation axis direction (ref. #'s 59c is **capable** of performing this function).”

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Suzuki’s invention to include one of the two developer stirring sections comprises a stirring member extending spirally in the rotation axis direction throughout an outer periphery of a shaft member, the stirring member carrying the developer in a direction opposite to a direction in which the developer supplying/collecting section carries the developer with the developer stirred, and has the developer carrying capability in the rotation axis direction equal to that of the developer supplying/collecting section, and another developer stirring section comprises a plurality of plate-like stirring members (*or claim 8: a rib placed on an outer periphery of a shaft member or at a position with being apart from each other with respect to the shaft member in a radial direction so as to extend along the rotation axis direction*) with a shaft member passing through, the plurality of stirring members inclined in a same

direction with respect to the shaft member, and has substantially no developer carrying capability in the rotation axis direction.

The ordinary artisan would have been motivated to modify Suzuki's invention in a manner described above for at least the purpose of making the toner concentration uniform by completely stirring developer in a developer container and to prevent the fault of an image such as the unevenness of the image (see Hibino's Purpose).

Regarding claims 6 and 9, Suzuki teaches, "wherein, in the developer stirring unit, another developer stirring section having substantially no developer carrying capability in the rotation axis direction is placed at a rear side with respect to the developer supplying/collecting unit (See Fig. 3)."

Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Suzuki (US Pub. 2002/0009309), Tamai (US Pub. 2003/0156859) and Hibino et al. (JP Pub. 07-013420) as applied to claims 5 and 8 above, and further in view of Kobayahsi et al. (US Pub. 2002/0098437).

Regarding claims 7 and 10, the combination of Suzuki, Tamai and Kobayahsi do not teach, "wherein the two-component developer is composed of the toner having a volume average particle diameter of 3 μm to 5 μm , and, denoting the volume average particle diameter of the toner by D_t (μm), the carrier having volume average particle diameter of 5.times. D_t to 10.times. D_t ." However, Kobayahsi teaches, "wherein the two-component developer is composed of the toner having a volume average particle diameter of 3 μm to 5 μm , and, denoting the volume average particle

diameter of the toner by D_t (μm), the carrier having volume average particle diameter of $5 \times D_t$ to $10 \times D_t$ (See Claim 14).” It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Suzuki, Tamai and Kobayahsi’s invention to include the two-component developer is composed of the toner having a volume average particle diameter of $3 \mu\text{m}$ to $5 \mu\text{m}$, and, denoting the volume average particle diameter of the toner by D_t (μm), the carrier having volume average particle diameter of $5 \times D_t$ to $10 \times D_t$.

The ordinary artisan would have been motivated to modify the combination of Suzuki, Tamai and Kobayahsi’s invention in a manner described above for at least the purpose of reducing fogging or density variation of the toner, which would reduce in image defects (see Kobayahsi [0005]).

Claims 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US Pub. 2002/0009309) in view of Tokimatsu et al. (US Pub. 2003/0219291), hereinafter referred to as Tokimatsu.

Regarding claims 30 and 32, Suzuki teaches, “A image formation apparatus comprising a latent image carrying member (12), a toner image formation section (22) for forming a toner image by developing an electrostatic latent image formed on the latent image carrying member, a transferring section (16) for transferring the toner image on the latent image carrying member to transferring material or an intermediate transferring member, a cleaning section (18) for removing toner remained on the latent image carrying member after the toner image is transferred.” Suzuki also teaches, “in the housing (14) of the development apparatus, a toner mixing opening (Fig. 3, “port of

supplied toners”) is placed above the position where the two developer stirring sections face each other and at an upstream side with respect to the toner supplying opening in the developer carrying direction in the developer stirring unit.” Suzuki does not teach, “a toner recycling section for collecting the toner removed from the latent image carrying member to be reused, and returning the recycled toner to a position above the stirring members.” However, Tokimatsu teaches, “a toner recycling section (Fig. 1, ref. # 81) for collecting the toner removed from the latent image carrying member to be reused, and returning the recycled toner to a position above the stirring members (43A and 43B).” It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Suzuki’s invention to include a toner recycling section for collecting the toner removed from the latent image carrying member to be reused, and returning the recycled toner to a position above the stirring members.

The ordinary artisan would have been motivated to modify Suzuki’s invention in a manner described above for at least the purpose of saving unused toner, enabling a longer usage period between refills.

Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US Pub. 2002/0009309) in view of Fujimoto (US Pub. 2002/0071697).

Regarding claims 41 and 42, Suzuki teaches, “a space (Fig. 3, between stirring paddles 7) is secured between the two developer stirring section in the developer stirring unit so as to make the developer circulate between the two developer stirring sections freely.” Suzuki does not teach, “wherein, in the housing, there is a partition between the developer supplying/collecting unit and the developer stirring unit for

separating space so as to avoid mixing the developer in the developer supplying/collecting unit and the developer in the developer stirring unit; the partition enables the developer in both the developer supplying/collecting unit and the developer stirring unit to move to each other at both edge parts in a longitudinal direction of both the developer supplying/collecting unit and the developer stirring unit.” However, Fujimoto teaches, “wherein, in the housing, there is a partition (Fig’s. 9 & 10, ref. # 2) between the developer supplying/collecting unit (10B area) and the developer stirring unit (10A area) for separating space so as to avoid mixing the developer in the developer supplying/collecting unit and the developer in the developer stirring unit; the partition (2) enables the developer in both the developer supplying/collecting unit (10B) and the developer stirring unit (10A) to move to each other at both edge parts in a longitudinal direction of both the developer supplying/collecting unit and the developer stirring unit (see Fig. 9 & 10).” It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Suzuki’s invention to include wherein, in the housing, there is a partition between the developer supplying/collecting unit and the developer stirring unit for separating space so as to avoid mixing the developer in the developer supplying/collecting unit and the developer in the developer stirring unit; the partition enables the developer in both the developer supplying/collecting unit and the developer stirring unit to move to each other at both edge parts in a longitudinal direction of both the developer supplying/collecting unit and the developer stirring unit.

The ordinary artisan would have been motivated to modify Suzuki's invention in a manner described above for at least the purpose of achieving uniform toner distribution within the chambers (see Fujimoto's abstract).

Allowable Subject Matter

Claims 29 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 29 and 31, the prior art does not teach or suggest the claimed "and following conditions (1) and (2) are satisfied: $W \cdot g \cdot t \leq M \cdot V \cdot L / 1000$ Condition (1) $R \cdot L \leq 600$ Condition (2) where V represents a moving speed (mm/sec) of the latent image carrying member, M represents maximum toner amount attaching to one unit area in the toner image formed on the latent image carrying member (mg/cm^2), L represents maximum width (mm) of the toner image formed on the latent image carrying member in a direction perpendicular to a moving direction of the latent image carrying member, W represents developer carrying amount (g/sec) by the developer supplying/collecting section in the rotation axis direction, and R represents rotation number of the developer supplying/collecting section."

Conclusion

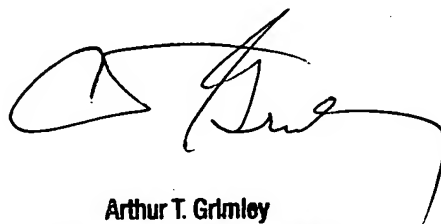
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Walsh whose telephone number is 571-272-2726. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on 571-272-2136. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ryan D. Walsh
Patent Examiner
Art Unit 2852

A handwritten signature in black ink, appearing to read 'Arthur T. Grimley', with a stylized, elongated flourish extending from the end.

Arthur T. Grimley
Supervisory Patent Examiner
Technology Center 2800